

ABSTRACT OF THE DISCLOSURE

MULTI-WAY RADIATION MONITORING

5 A multi-way radiation monitoring and detection system is capable of detecting
a radiation source on or within traffic that can travel within M adjacent traffic ways,
where M is an integer equal to or greater than a value of 2. The radiation detection
system comprises a set of $(M+1)$ radiation detector assemblies with individual radiation
detector assemblies of the set of $(M+1)$ radiation detector assemblies respectively
10 positioned at each of two sides of each of the M adjacent traffic ways. A set of M
controllers is included and each controller is associated with a respective traffic way of
the M adjacent traffic ways. Each controller is coupled to the respective individual
radiation detector assemblies positioned at the two sides of the traffic way to which
that controller is associated, such that two controllers associated with two adjacent
15 traffic ways couple to the individual radiation detector assembly positioned between
those two adjacent traffic ways. Each controller is operable to receive a radiation
signal produced from at least one radiation detector assembly coupled to that controller
to identify a radiation source present in a traffic way adjacent to the at least one
radiation detector assembly. Some of the detectors within detector assemblies between
20 traffic ways may be unshielded plastic Gamma radiation detectors, with such detector
assemblies or associated controllers having natural background radiation rejection
processors.